Caught-In or Breaking-Free from the Middle Income Trap: The Case of Malaysia

Chan-Yuan Wong and Hon-Ngen Fung

Malaysia is among the developing economies that has shown relative promise in breaking its middle income trap (MIT). However, the lack of sophistication of institutions for industrial upgrade and the attainment of productive routines means that many local firms remain self-organized and suffer from the absence of complementarities. This study seeks to understand Malaysia's position on MIT and compare the country's current trajectory against newly industrialized economies (*e.g.*, South Korea and Taiwan). This study focuses on five explorations that depict Malaysia's performance position in achieving developed status: (1) income and foreign direct investment, (2) economic structure, (3) upgrading, (4) social capital, and (5) education. This study argues that the key barriers that prevent Malaysia from exiting MIT stem from the lack of effective measures in terms of social capital to improve education and institutions. Thus, the development of productive routines with instituted inclusive measures to accelerate the upgrading process is crucial to break MIT.

Keywords: Middle income trap, Malaysia, Political economy, Social capital, Economic upgrading

JEL Classification: O14, O30, O20, O10

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I. Introduction

The middle income trap (MIT) phenomenon describes a situation in which middle income countries successfully emerge from the low income bracket but have been unable to break into the bracket of advanced countries in terms of income per capita (World Bank 2010; Lee 2013). A few studies have argued that the reliance on natural resources has reduced investment in disruptive technologies or relatively hampered the transition to a successful export-oriented industrialized country (Ohno 2013). Previous studies (Thiruchelvam *et al.* 2012; Ohno 2013) have shown that Malaysia has yet to emerge from the pack compared with newly industrialized economies (NIEs), such as Japan, Taiwan, South Korea, Singapore, and Hong Kong, with regard to technology development (number of patents taken as a proxy indicator for technology development) against GDP. However, Malaysia has shown above average performance against population growth, thereby indicating that this country may or may not have the potential to join the rest of the NIEs.

Malaysia has shown considerable promise in breaking MIT. Unlike many developing economies in Southeast Asia, Malaysia has managed to transform many informal economic activities to formal ones. This country has witnessed economic growth of approximately 5% for decades and low unemployment rate. Moreover, Malaysia oversaw the influx of foreign direct investments (FDI) into the country, with a few investments related to high-cost infrastructure projects, particularly from China as part of the "One Belt, One Road" initiative. The gross national income increased from USD 8,230 to USD 10,010 between 2010 and 2017. A few economists were optimistic toward Malaysia's potential to become a high-income economy because of the reduction of subsidies, introduction of Goods and Services Tax (GST), and enabling of a business-friendly environment for expansion (The Sun Daily 2017).

The Najib Razak administration (3 April 2009 to 10 May 2018) managed to achieve a low share of informal economic activities (11.4 share of informal employment in 2016). In addition, the administration exerted a consistent effort to lower fiscal deficit (MIER 2016), thereby implying effort to lower the debt ratio (from approximately 54.5% to 50.8% over GDP between 2015 and 2017). However, a few studies have argued that it may be premature to do so given the lagging services sector relative to similar middle income countries within the global value

chain, lack of diversity in the goods and services exported, and lack of continued structural transformation (Flaaen *et al.* 2013; Hutchinson and Das 2016). Although the country has no shortage of blueprints, master plans, and economic policies, the impact of such programs has not had the desired effect, with Malaysia caught between its inability to compete with low-wage economies in the "race to the bottom" and still waiting to develop the (innovative) capability to compete with that of advanced economies. Such is prevalent in the region as authoritarian governments, with a penchant for corruption and rent seeking, manage to achieve high growth through interventionist policies (Inter Press Services 2018; Rock 2017).

The lack of sophistication in the arrangement of institutions and attainment of productive routines means that the majority of firms and sectors remain self-organized and suffer from the lack of complementarities. Being caught in this "mediocrity treadmill" has led to insufficient social capital to proliferate skills and niches in the global technological value chain. The high income inequality has led to an outflow of skilled talent that was keen to seek fair remuneration and working conditions for their expertise. Malaysia has become a consumer and skilled user of technology in establishing manufacturing and logistics hubs with the attraction of numerous multi-national corporations. However, technological spill-over is lacking partially because of the weak upgrading processes for the development of innovative capability, particularly with regard to industrial R&D investment and upskilling, among others.

During the Najib administration (prior to 9 May 2018), innovative activities were emphasized but with mixed results. Several agencies and programs were implemented to improve competitiveness and social capital, particularly the following that were placed under the direct purview of the prime minister's office.

- Pemandu ETP – An entity in targeting potential sectors to create economic multipliers. It promotes activities that will create values in the targeted sectors and provide support for local entities and multinationals that attempt to invest for their long-term development.
- Pemandu GTP – Entity established to add value and enhance public service quality. The services include police force public services to reduce crime, measures to fight corruption, and measures to

improve quality education and living standards.
- MaGIC – An entity administrating programs that will advance entrepreneurship. It attempts to create an ecosystem that is favorable to entrepreneurial activities and startups.
- TalentCorp – An intermediary to administrate brain gain program and skill matching between supply of education services and industrial demand, among others. This entity promotes programs and schemes for Malaysians overseas who wish to return and develop a career/business in Malaysia.

Although executed with substantial pomp and circumstance, these programs were unable to generate the impact necessary to spark the paradigm shift that was envisioned to catapult Malaysia to a high income bracket.

The political will swung extensively with the turn of the election season because politicians relied on focusing government resources to aid their re-election. Scholars have documented that politicians in many developing economies are generally populist/redistributive and rarely face strong industrial upgrading pressure (Doner and Schneider 2016). Malaysia witnessed the first change of political regimes on 9 May 2018. The new government administration, which was formed by a coalition led by current (and former) Prime Minister Tun Dr. Mahathir bin Mohamad, Pakatan Harapan (PH), has revised the debt ratio from 65% to 80% over GDP to account for entities that are unable to service their debts and contingent liabilities.

GST has been reduced to 0% pending the introduction of a Sales and Service Tax (SST) on 1 September 2018, which is expected to reduce government revenue which may lead to low development expenditure moving forward. The implementation of many of the high-cost projects that have been approved has been suspended pending review or has been shelved entirely. Such projects include portions of the "One Belt, One Road," such as the East Coast Rail Link (ECRL) and the Malaysia-Singapore High Speed Rail (HSR), which a few commentators explained could be a reoccurrence of the acquisition of the Hambantota Port in Sri Lanka. Many of the agencies and programs, particularly those previously mentioned, were dissolved, merged, or relocated to other ministries. Investigations into irregularities and possible misconduct are also ongoing. The PH government has also been active in revising the classification of FDI to introduce additional measures that will favor

the creation of high-value jobs and technology transfer. These measures could be interpreted as a revival of the "Look East" policy vaunted by Mahathir during his previous tenure as prime minister.

Nonetheless, this study argues that as Malaysia looks to heal from the political irregularities or cases of misconduct, which is common in the majority of developing economies, of the past administration, the high income inequality may remain for the time being because of more pressing concerns for the government to address. This study seeks to understand Malaysia's position on MIT and compare the country's current trajectory against NIEs. The data presented in this research were collected from time series data sourced from the Department of Statistics Malaysia (DOSM), World Bank, and various government reports. The rationale is to enable this study to analyze trends over a long period from trusted sources. This collection of secondary data was juxtaposed against current economic policies in the selected economies to present a comparative analysis of the case studies. The current study collated most recently available data for the longest time series possible to identify trends and similarities in the trajectory between various economies.

II. 2.0 Performance Indicators

Doner and Schneider (2016) reviewed a few defining performance indicators attained by NIEs in breaking their MIT. The current study seeks to discuss Malaysia's performance using indicators pertaining to the ones highlighted by Doner and Schneider (2016) and other studies. These indicators are as follows.

(i) Income: A developing country needs to leap a threshold of a certain income level, although no precise science can determine such an income level. On the one hand, a few studies have labeled MIT countries as those stuck in middle income between USD 7500 and USD 11,500 for over 14 years. On the other hand, a few research have labeled MIT countries as simply those that attained an income level below 40% in terms of GDP per capita relative to the US for a long period (Im and Rosenblatt 2013; Federal Reserve Bank of St. Louis 2015). The current study used the benchmark of the latter. Other related wealth indicators, such as wage level, FDI, labor cost competitiveness, and Gini coefficient of income inequality, will be

reviewed.

(ii) Economic structure: Pre-mature deindustrialization or deliberately (rush) leap to develop servicing sectors may cause an economy to face a dilemma. It may see itself unable to compete with low-wage economies in manufactured exports and has yet to attain innovation capabilities to compete in highly value added servicing sectors. The servicing sectors attained by MIT countries tend to be low-value adding, non-exportable, and with progress often accompanied by economic inflation. This study assesses the changes in economic structure and provides an overview of the emergence of the servicing sectors.

(iii) Upgrading: This study will provide an overview of the R&D investment and assessment of a highly value-added servicing sector, namely, construction.

(iv) Institutions (social capital): This study will provide an overview of the state commitment in empowering social capital and elucidate private sector participation in the national investment-related policy.

(v) Education: Doner and Schneider (2016) used the PISA score in their assessment and argued that "countries where educational levels that exceeded the norm for their income levels have some of the fastest growing in East Asia and the ones most likely to escape the MIT" (Doner and Schneider 2016, p. 614) These countries have arguably attained a functional educational system that produce enterprising personnel that private sectors (mainly multinationals in the early period of industrialization) can hire. The personnel would accumulate important, productive, and organizational knowledge that are instrumental for spinning-off of new businesses and collectively configuring new economic structure. This situation is evident in Singapore, South Korea, Taiwan, and Hong Kong. This study will use the PISA score to assess the educational achievement of Malaysia to assess one of the crucial pre-conditions in the process of breaking MIT.

III. 3.0. Defining Performance in Breaking MIT

A. Income and FDI

Compared with Malaysia's closest middle income neighbors in the

ASEAN region, the former has performed considerably better, peaking close to the 50% mark compared to 20% for Indonesia and 23% for the Philippines in 2017 in terms of GDP per capita as percentage of the US (PPP) (see Figure 1). Thailand (see Intarakumnerd 2019 for the case of Thailand) is noted to be following behind and relatively attained a steep learning curve as well. The figure for Malaysia is approximately 15% behind South Korea, although the gap is narrowing over the past five years. Nonetheless, the current study would argue that as the wage rate remains distant from advanced countries, such as South Korea and Taiwan, Malaysia would struggle to retain talent and may be unwittingly caught in the same bracket as that of Thailand and China (see Figure 2).

Therefore, we should consider that the distribution of GDP in Malaysia as a productive state, such as Penang, has been shown to have a GDP per capita of 57%, which is nearing that of South Korea (Lee *et al.* 2019), while many other states, such as Kelantan and Sabah, performed substantially behind. An explanation for this situation is the high rate of income inequality, which is represented by the Gini index (see Figure 3). The Gini index is higher than the rate for Taiwan and South Korea, which had an effect on the migration outflow in Malaysia. In 2016 alone, 14.7 million Malaysians were estimated to be working overseas (Foo 2011; Wong *et al.* 2018), 27%, 59.7%, and 13% of which were in high-, semi-, and low-skilled labor, respectively.

In terms of FDI, inflows of investment have been volatile and sensitive to global market forces but have increased over time (Figure 4). The Malaysian Investment Development Authority (MIDA) has noted that the major countries investing in Malaysia include China, Singapore, Hong Kong, Japan, and the US. The share of FDI in the manufacturing sector (25.8%) is only half of that of the services sector (50.9%). Such FDI are particularly focused on chemicals and chemical products, petroleum products, and transportation equipment sector for manufacturing, and global establishment (USD 3 billion) and distributive trade (USD 1.5 billion) for services. FDI flows were noted to be typically by equity and investment funds (90.6%) as opposed to debt instruments (9.4%).

History suggests that FDI may be a two-edged sword with regard to economic growth. Although Malaysia attained a relatively higher rate of wages compared with its ASEAN neighbors and FDI inflows, labor cost competitiveness has seen limited growth in 2016 in selected manufacturing sub-sectors (see Table 1). Aside from electrical and

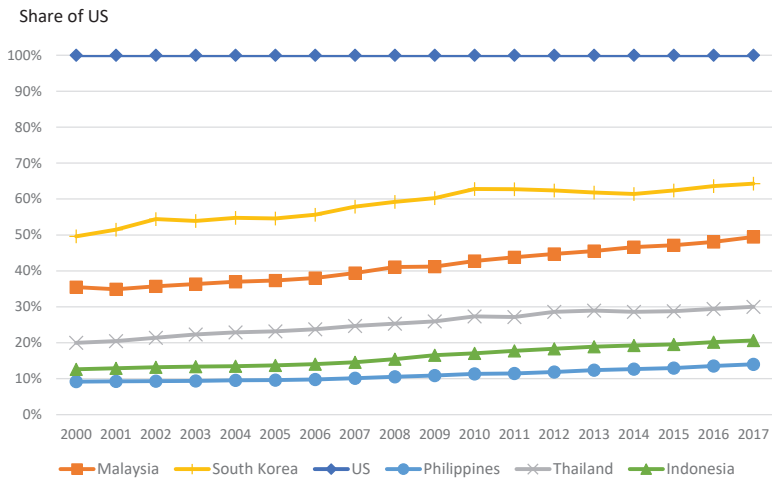

FIGURE 1
PER CAPITA GDP AS % OF THE US (PPP) OF SELECTED ECONOMIES, 2000–2015 (SOURCED FROM WORLD BANK, DOS)

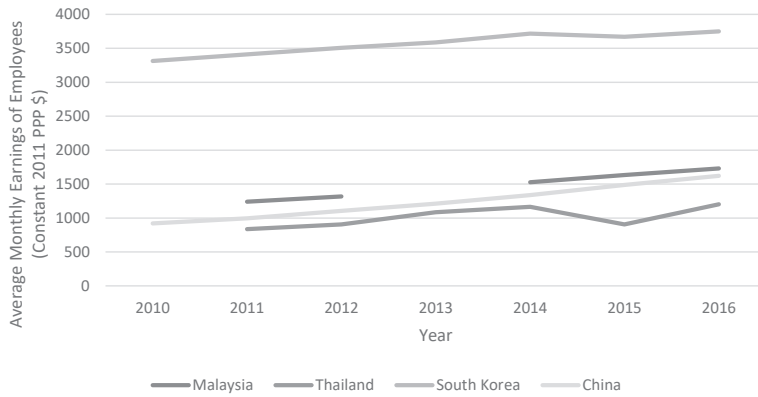

FIGURE 2
WAGE RATE IN SELECTED ECONOMIES (ESTIMATED FIGURE FOR TAIWAN IN 2017 IS $3192) (SOURCED FROM ILO)

electronics, wood and wood products, and textiles, the remaining sub-sectors observed growth rates of productivity of below 5% (see Table 1). Manufacturing generally attained a productivity growth rate (1.4%) that is substantially behind than that of labor cost per employee (5%).

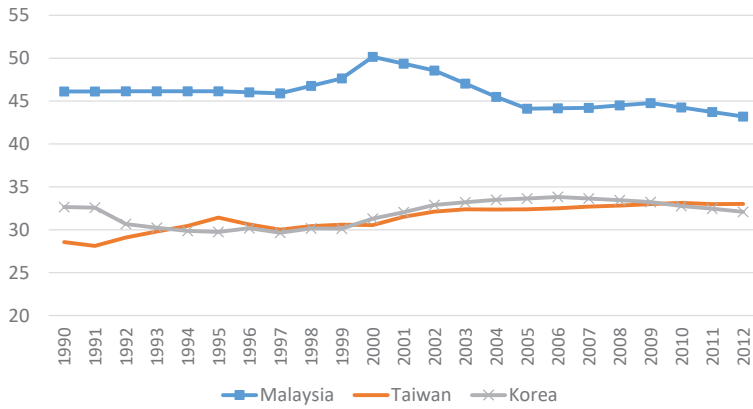

FIGURE 3
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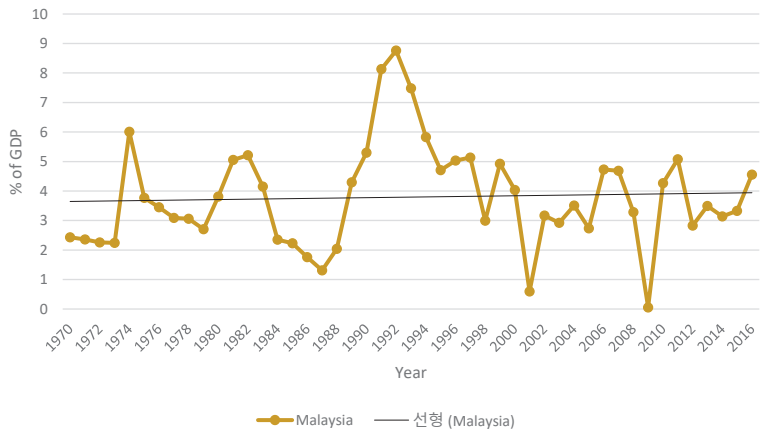


FIGURE 4
FDI INFLOWS (% OF GDP) (SOURCED FROM WORLD BANK)

Thus, despite the promising GDP per capita data, this study argues that there remains certain barriers within the Malaysian economy that would hinder income growth and the progress of Malaysia out of MIT. The rate of income inequality and outflow of Malaysians are seen as part of the main factors that prevent Malaysia from maximizing its potential in driving productivity. The data point to a concentration of value within specific firms or sectors. This condition is endemic to the

Table 1
Labor cost Competitiveness of Selected Manufacturing Sub-sectors, 2016
(Adapted from NPC 2017)

Growth (%)	Productivity	Labor Cost per Employee	Unit Labor Cost
E&E	9.6	4.7	−2.4
Wood and Wood Products	5.3	3.2	−1.9
Textiles	5.1	2.3	−2.6
Wearing Apparels	3.4	7.8	4.3
Transport Equipment	3.2	-5.4	−8.3
Machinery and Equipment	3.0	2.6	−0.2
Chemicals and Chemical Products	2.8	2.5	−0.2
Other Non-metallic Mineral Products	1.7	6.4	4.8
Basic Pharmaceutical	1.7	−0.7	−2.3
Paper and Paper Products	1.5	−1.0	−2.6
Refined Petroleum	1.5	16.8	10.9
Manufacturing	1.4	5.0	3.1
Beverages	0.7	7.5	6.8
Rubber and Plastic Products	0.6	6.4	5.8
Fabricated Metal Products	0.5	6.9	6.4
Basic Metals	-1.1	4.7	5.8
Food Products	-3.5	9.1	14.3

Najib Administration where “corporate wealth is ... controlled through block shareholdings by a mere seven Government Linked Companies (GLICs) under the jurisdiction of the Minister of Finance (also Prime Minister of Malaysia)” (Gomez *et al.* 2017, p. 3).

B. Economic Structure

Malaysia has focused on the manufacturing sector and natural resources in developing an export-oriented economy since the 1980s and successfully made the transition in the late 1990s. During this period, exports have remained relatively higher than imports although growth has relatively decreased in recent years (see Figure 5). In terms of structure, Malaysia has witnessed a reduction in primary commodities and an increase in the services sector because the country concentrated on export-led growth (Figure 6). Thus, the share in exports for re-

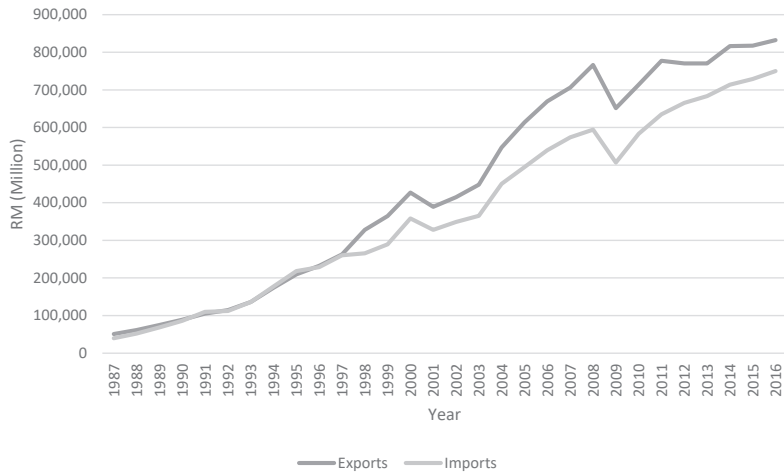


Figure 5
Exports vs Imports (Malaysia) at Current Prices (Sourced from DOSM)

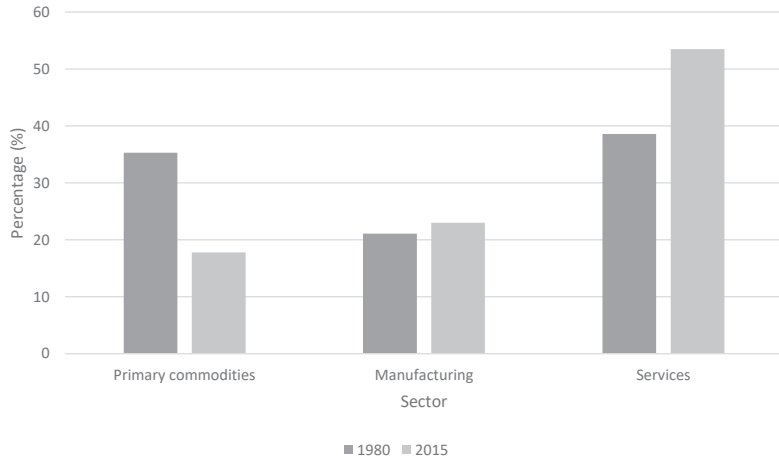


Figure 6
Share in GDP by Sector (Sourced from DOSM)

source-based manufacturing and electrical and electronic products increased to over 50% between 1980 and 2015. Such a growth highlights Malaysia's departure from an agricultural and mining economy to manufacturing (Figure 7). The ensuing commanding power in productive

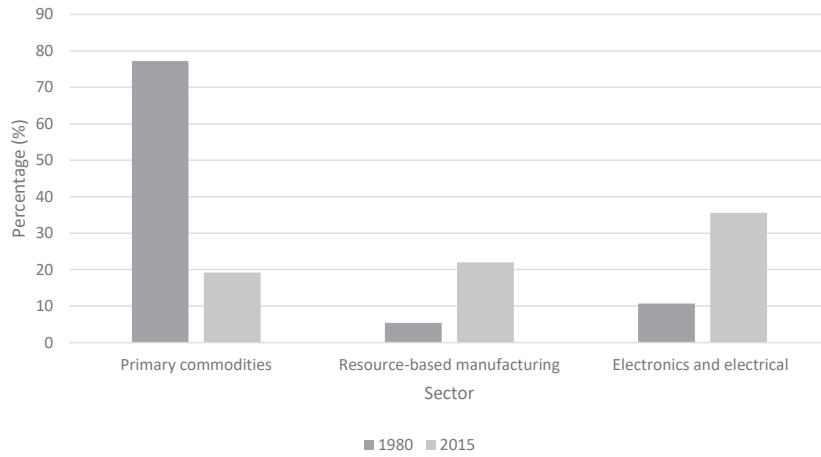


Figure 7
Share in Exports by Sector (Sourced from DOSM)

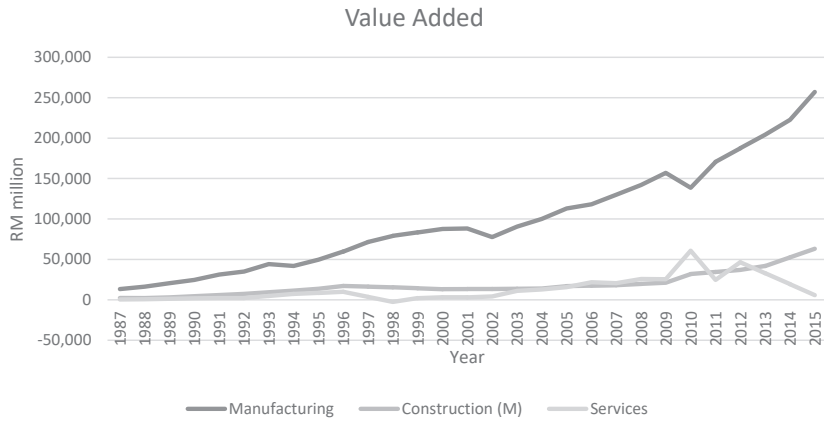


Figure 8
Value Added Activities in Malaysia by Sector (1987–2015) (Sourced from DOSM)

activities led Malaysia's economy to achieve a positive current account balance for many years.

At this point, we observed that the share in exports is highly dominated by the manufacturing industry. However, services and construction lag behind considerably (Figure 8). Although Malaysia has been

keen to develop its servicing industries and aspire to leap from middle income to high income economy via producing highly value added services, the value added sum from the service and construction industries has yet to close the gap to that of manufacturing. Experts point to the lack of exports in the services sector as a potential drawback. However, given Malaysia's proximity to Singapore and Hong Kong, this situation may be a niche that should be positioned wisely. Moreover, the stalled growth of manufacturing activities (20% to 25% since 2010) with the increasing share of the servicing sector that evolved without much advancement in highly value added services raises concerns that Malaysia may be deindustrializing prematurely.

C. Upgrading

Malaysia exerted substantial effort to increase the R&D investment for industrial upgrading and productive sectoral development. The country has a progressive R&D expenditure ratio in terms of percentage of GDP, from 0.79% in 2008 to 1.3% in 2015. Business enterprise (BE) was the dominant player in the total R&D investment landscape for 2008–2012 (see Figures 9 and 10). However, many SMEs and indigenous firms remain unable to compete and develop niches because Malaysia has been unable to connect the academic–industry divide owing to poor institutional management (Thiruchelvam *et al.* 2013).

The ratio between BE and higher learning institutions (HLI) (which research projects are funded by the government yearly allocation) and government research institutions (GRIs) in 2008 is 2.38:1. Given that the government was keen to increase R&D investment, particularly investment from BE, it raised the allocation for applied research in HLI and GRI as it may generate (more) interest from business sector to follow the measure in increasing R&D activities. Although the R&D investments from HLI and GRI were increased from RM 1791.4 million to RM 7592.47 million in 2014, and RM 7234.80 million in 2015, the increase generated minimal impact on R&D from BE. The ratio between BE and HLI and GRIs has seen a consistent drop from 2008 and 2014, and achieving only 0.84:1 and 1.08:1 for 2014 and 2015, respectively. R&D activities from HLI and GRI are believed to be mismatched with that of BE. Thus, the increase of R&D from HLI and GRI has produced minimal impact on BE interest in R&D investment.

For servicing sectoral upgrading, we focus on the construction

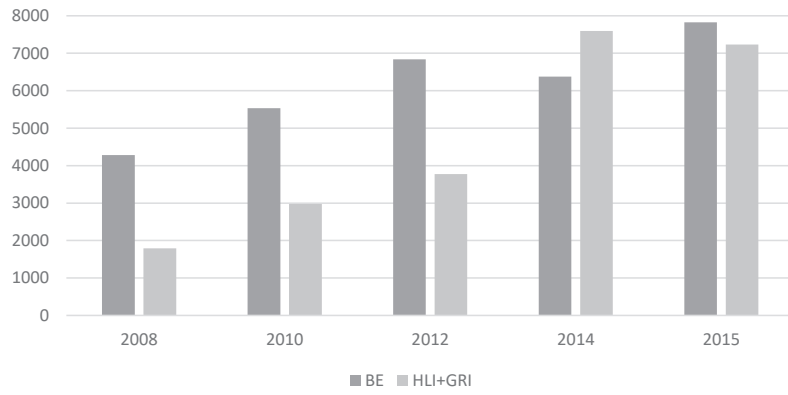


Figure 9
R&D Investment by Sector Source: MOSTI (2016 pp. 23–24)

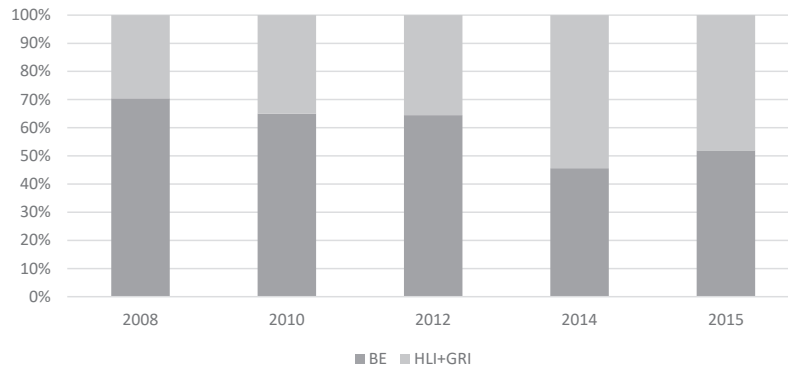
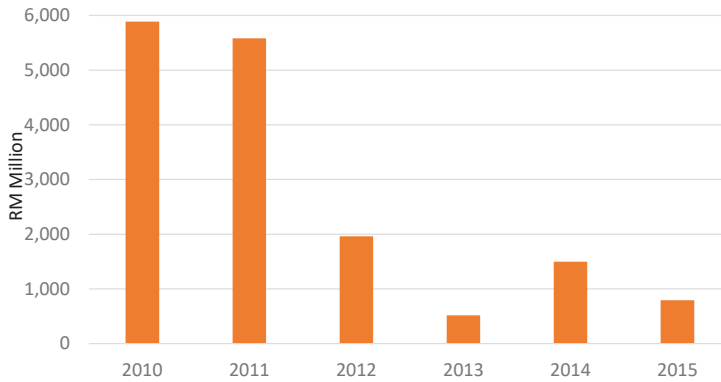


Figure 10
Share R&D Investment by Sector Source: MOSTI (2016 pp. 23–24)

sector because of its relative promise in transitioning into an export-oriented service sector. The past few years have seen an increase in the number of civil engineering projects (infrastructure) as opposed to residential and non-residential buildings and special trade activities (Figure 12). The highest growth was contributed by civil engineering with 12.5%, followed by residential buildings, special trade activities, and non-residential buildings at 9.8%, 3.7%, and 2.5%, respectively, in the fourth quarter of 2016 (DOS 2017a, p. 3). In terms of total value of construction work done in the fourth quarter in 2016, civil engineering



Source: CIDB (2017)

Figure 11
Number and Value of Projects Undertaken by Malaysian Contractors in Global Market by Year of Project Awarded

contributed 35.3%; residential buildings, 29.5%; special trade activities, 4.6%; and non-residential buildings, 30.6%. Relatively developed states in Malaysia attained high value of construction work done. This result is evident for the cases of Selangor, Johor, and Kuala Lumpur, which attained RM 7.1 million, RM 6.8 million, and RM 6.4 million, respectively (DOS 2017a, p. 4). However, underdeveloped states, such as Kelantan and Terengganu achieved only RM 0.5 million each. Inequality in terms of development between the developed and underdeveloped ones is apparent.

On the one hand, the emergence of civil engineering in the construction sector implies that Malaysia is in transition toward producing highly value added services. The reason is that civil engineering is acknowledged as a sub-sector that requires skilled and knowledge workers to perform designing, engineering, and consulting tasks. This situation is no longer surprising because of the influx of infrastructure projects related to the "One Belt, One Road" Project. However, there has been a significant decrease in the value of projects undertaken by Malaysian contractors in the global market (see Figure 11) beginning in 2012. This result can be attributed to the non-competitiveness of Malaysian firms or Malaysian firms being superseded by firms from other countries with strong bilateral ties.

D. Social Capital

In terms of social capital, Malaysia's social expenditure has a similar trajectory as Thailand and Japan and hovers around the 20% GDP mark. In this case, South Korea has bumped up to 25% as of 2011, while Turkey has remained above the 30% mark compared with the selected economies.

In terms of institutions, Malaysia has been unable to develop the networks, productive routine, and social capital to compete with advanced, industrialized countries. A worrying aspect which is not covered in this research is the increased living cost, which has driven the need for social expenditure and government subsidies for the supply of goods.

Although Malaysia has implemented several public policies to promote science and technology activities and attract FDI during the Najib administration, the country has yet to gain substantial impact and desirable outcomes. Two major policies are the Economic Transformation Program (ETP) to transform Malaysia's economy to attaining high income status and Government Transformation Program (GTP) to transform public sector to be acknowledged as an efficient entity with high integrity. Although these policies are elaborate, with explicit key performance indicators that the public labor need to achieve, they produced minimal in advancing wealth in the economy. The eventual low impact of the policies is not caused by the quality of the policies but because of the weak response of the private sector to these policies (Ohno 2013, p. 229).

The issue is highly attributable to the trust deficit in the private sector on public entities. Corruption has been perceived as one of the main barriers in building healthy business activities in Malaysia. Many business owners regarded corruption as a (indirect) cost (*e.g.*, bribe) that prevents them from expanding and investing long term in Malaysia. Accordingly, Malaysia is ranked 62nd in the Transparency International Corruption Perception Index 2017 and shares the same level with Cuba and Montenegro. Many firms are discouraged to invest for the long term, such as R&D activities, in Malaysia because they gradually lose confidence in many public institutions. Excessive (and occasionally unnecessary) bureaucratic procedures, policy instability, poor work ethic of the national labor force, and difficulties of access to supportive financing scheme are among the most problematic factors for business

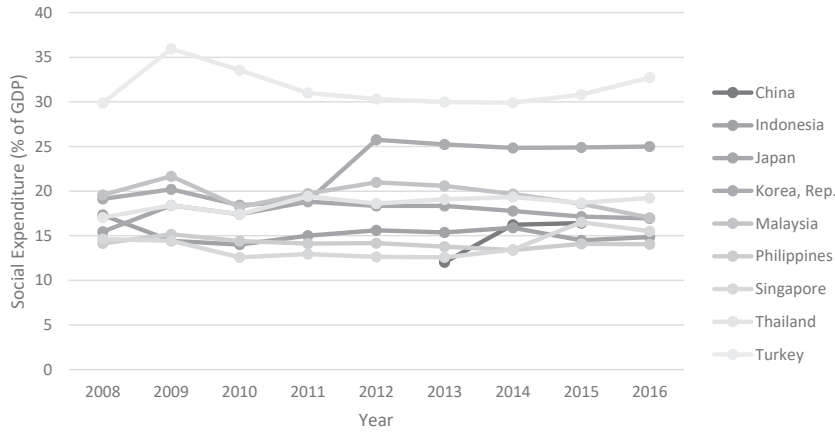


Figure 12
Social Expenditure, % of GDP (Sourced from World Bank)

entities to pursue business ventures in Malaysia (Thiruchelvam *et al.* 2013, pp. 10–12).

E. Education

Malaysia is one of the few countries that was able to get the majority of its children to schools (DOS 2017b; World Bank 2016). The country achieved 98.9% of primary school enrolment in 2016 and high literacy rate for both males and females between 15 and 24 years old. Accordingly, expanding (primary) education during the early economic catching-up process is relatively easy because the cost of upgrading is low (Doner and Schneider 2016) and local politicians responsible for education system can reap political mileage via providing educational services to poor masses. However, improving the quality of education is difficult because of the high cost of recruiting high-quality teachers and having them replace the ineffective ones. Moreover, connecting education systems with the demanded skills in the industries requires teachers with technical knowledge and curriculum that is coordinated with the business world.

In terms of quality of education, the PISA score indicates that Malaysia is behind Thailand, Turkey, and the rest of the NIEs in the average score for mathematics (at 15 years of age); on par with Indonesia and behind the other selected economies in reading (at

Table 2
Quality of Education (Sourced from PISA 2012)

Jurisdiction	Average score (Standard Error in parentheses)		
	Mathematics	Reading	Science
Japan	536 (3.6)	538 (3.7)	547 (3.6)
South Korea	554 (4.6)	536 (3.9)	538 (3.7)
Turkey	448 (4.8)	475 (4.2)	463 (3.9)
Taiwan	560 (3.3)	523 (3.0)	523 (2.3)
Hong Kong	561 (3.2)	545 (2.8)	555 (2.6)
Indonesia	375 (4.0)	396 (4.2)	382 (3.8)
Malaysia	421 (3.2)	398 (3.3)	420 (3.0)
Singapore	573 (1.3)	542 (1.4)	551 (1.5)
Thailand	427 (3.4)	441 (3.1)	444 (2.9)

15 years of age); and behind all the selected economies apart from Indonesia in science (at 15 years of age) (see Table 2). Thus, Malaysia has a low performance in terms of the PISA score despite the high education-related expenditure.

On the demand side, the low performance in terms of quality of education can be attributed to high income inequality issue that Malaysia faced for decades. Although the rich and skilful ones acquired their skills on the job and send their children into private education entities which providing them a path to foreign education, the poor ones with low disposable income are discouraged to invest in quality of education for their children as the opportunity cost is high and return is uncertain.

On the supply side, not many business entities in Malaysia are keen to collectively push the government to reform and invest in quality of education. Many productive firms in Malaysia are foreign multinational corporations and have an internal training mechanism to upgrade their human capital. Other multinationals performing low value added activities are not keen to invest or collectively pushing the upgrading of education as they can easily move their operations to other lower wages economies the time they find wages level in Malaysia is no longer in their favor. Those local business entities are investing in natural resource (crude oil), plantation (palm oil) and non-tradable servicing (utilities and construction) businesses. They neither need critical

mass of knowledge and skilled workers nor see the need to push the government to socialize the cost of upgrading of education.

IV. 4.0 Discussion and Conclusion

The sentiment among Malaysians is that Malaysia should be an advanced country by now if there was good governance among policymakers with a focus on building export capability as opposed to window dressing macroeconomic statistics. Malaysia's high expenditure on education and research appears to have been misplaced (read mismanaged) and is not reflected in indicators measuring education performance and industrial impact. The lack of technology transfer is a pointed issue because Malaysian firms have insufficient capability to develop competitive products and are reliant on imported goods and services to drive their business growth.

A telling critique is that "Malaysia throws cash into middle-income trap"- $1.5 billion of handouts to enrich the poor but in terms of upgrading competitiveness, "it falls woefully short" (Reuters 2017) which concisely summarizes the lack of depth in the confidence of policy makers with regard to Malaysia's position in MIT.

This study argues that the key barriers to Malaysia exiting MIT stems from the lack of effective measures in improving education as well as institutions. Despite the emphasis on education in science, technology, engineering, and Mathematics (STEM), there should be horizontal measures implemented to emphasize on developing solutions in improving awareness and knowledge in science and technology. The apathy surrounding STEM has led to the stagnation in the manufacturing sector and the shift to the services sector. Another horizontal issue is institutional reform. Emphasis should be placed on developing productive routines with inclusive measures instituted to accelerate the upgrading process.

In particular, vertical policy measures, particularly for the manufacturing and plantation sectors, should be implemented. In manufacturing, there needs to be an elevation of performing clusters that have emerged organically without policy support, such as the electrical and electronics cluster in Penang, furniture cluster in Muar, and rice cluster in Sekinchan, with a few measures to other less notable clusters in various locations in Malaysia. The plantation sector can also benefit through the promotion of linkages between the few indigenous

firms (Malaysian Resources Corporation Berhad, Sime Darby, UEM) and SMEs to create multiplier effects in upgrading the support services for the industry.

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